CLAIMS

What is claimed is:

1. A flow control device for selectively closing a tubing string to fluid flow therethrough, the device comprising:

a housing defining a flowbore therethrough;

a radially inwardly projecting shell retained within the flowbore to provide a flowbore portion having restricted diameter, the shell presenting a plug member seat;

a plug member shaped and sized to fit within the flowbore and be seated upon the plug member seat; and

the shell being deformable to permit the plug member to pass through the restricted diameter upon application of a predetermined amount of force to the plug member.

2. The flow control device of claim 1 wherein the shell is elastically deformable.

3. The flow control device of claim 1 wherein the shell is plastically deformable.

4. The flow control device of claim 1 wherein the plug member is spherically shaped.

5. The flow control device of claim 1 wherein the shell is formed of metal.

6. The flow control device of claim 1 wherein the shell is formed of elastomer.

7. The flow control device of claim 1 wherein the shell is formed of plastic.

8. The flow control device of claim 1 wherein the shell is formed of a composite material.

9. The flow control device of claim 1 wherein the shell is annular.

10. The flow control device of claim 1 wherein the shell defines an annular fluid chamber.

11. The flow control device of claim 10 wherein the annular fluid chamber is filled with fluid.

12. The flow control device of claim 11 wherein the fluid comprises nitrogen.

13. The flow control device of claim 11 wherein the fluid comprises water.

14. The flow control device of claim 11 wherein the fluid comprises silicon type oil.

15. A flow control device for selectively closing a tubing string to fluid flow therethrough, the device comprising:

a housing defining a flowbore therethrough;

a radially inwardly projecting shell retained within the flowbore to provide a flowbore portion having restricted diameter, the shell further presenting a plug member seat; and

the shell being deformable to permit a plug member to pass through the restricted diameter upon application of a predetermined amount of force to the plug member.

16. The flow control device of claim 15 wherein the shell is elastically deformable.

17. The flow control device of claim 15 wherein the shell is plastically deformable.

18. The flow control device of claim 15 further comprising a plug member shaped and sized to fit within the flowbore and be seated upon the plug member seat.

19. The flow control device of claim 15 wherein the shell defines an annular fluid chamber that is filled with fluid.

20. The flow control device of claim 15 wherein the shell is substantially formed of a metal alloy.

21. The flow control device of claim 15 wherein the shell is formed of an elastomeric material.

22. The flow control device of claim 15 wherein the shell is formed of plastic.

23. The flow control device of claim 15 wherein the shell is formed of a composite material.

24. A method of flow control within a production tubing string for temporarily blocking flow through the tubing string, the method comprising the steps of:

incorporating a flow control device within a tubing string, the flow control device having a housing defining a flowbore therein, and a restricted throat portion within the flowbore formed by a radially inwardly projecting shell that presents a plug member seat;

disposing a plug member within the tubing string to seat the plug member upon the plug member seat;

increasing fluid pressure within the tubing string above the plug member to a first level to create a fluid seal, thereby blocking fluid flow within the tubing string; and

increasing fluid pressure within the tubing string above the plug member to a second level to force the plug member through the restricted throat portion and unblock the tubing string to fluid flow therethrough.

25. The method of claim 24 further comprising the steps of:

disposing a second plug member within the tubing string to seat upon the plug member seat;

increasing fluid pressure within the tubing string above the second plug member to said first level to create a fluid seal, thereby blocking fluid flow within the tubing string.

26. The method of claim 25 further comprising the step of increasing fluid pressure within the tubing string above the second plug member to a second level to force the second plug member through the restricted throat portion and unblock the tubing string to fluid flow therethrough.